CLAIMS

What is claimed is:

1. An apparatus comprising:

a plurality of source followers, each of the plurality of source followers comprising a pull-down transistor having a source, a drain, a gate, and a bulk terminal; and

a plurality of pull-up transistors, each of the plurality of pull-up transistors having a source, a drain, and a gate, wherein the drain of each of the plurality of pull-up transistors is coupled to the source of a pull-down transistor of the plurality of source followers, to output a plurality of differential signals via the drains of the plurality of pull-up transistors.

2. The apparatus of claim 1, wherein the bulk terminal of the pull-down transistor is coupled to the source of the pull-down transistor.

3. The apparatus of claim 2, wherein the pull-down transistor is a p-channel transistor.

4. The apparatus of claim 1, further comprising:

a first current source coupled to the sources of the plurality of pull-up transistors;

an operational amplifier, coupled to the first current source, to drive the first current source; and

a feedback path coupled between the drains of the plurality of pull-up transistors and an input of the operational amplifier.

5. The apparatus of claim 4, wherein the feedback path further comprises a sensing circuit, the sensing circuit includes a plurality of transistors biased by a predetermined voltage.

6. The apparatus of claim 4, wherein the first current source is powered by a first voltage of at least about 1.624V to 2.725V.

7. The apparatus of claim 1, further comprising a low swing differential pre-driver, coupled to the gates of the pull-down transistors of the plurality of source followers, to drive the pull-down transistors.

8. The apparatus of claim 7, wherein the low swing differential pre-driver comprises:

a second current source;

a current sink including a transistor and a resistor, the transistor being coupled to the resistor in parallel; and

a load, coupled between the second current source and the current sink, to output a plurality of low swing differential signals, wherein each of the plurality of low swing differential signals drives the gate of the pull-down transistor of one of the plurality of source followers.

9. The apparatus of claim 1, further comprising a plurality of inverters, each of the plurality of inverters being coupled to the gate of each of the plurality of pull-up transistors to amplify an input signal and to apply the amplified signal to the gate of the corresponding pull-up transistor, wherein the plurality of inverters are powered by a second voltage approximately between 1.1V and 1.3V.

10. The apparatus of claim 1, further comprising:

a network interface including the plurality of pull-up transistors and the plurality of source followers; and

a plurality of transmission lines coupled to the network interface, the plurality of transmission lines being driven by the plurality of low voltage differential signals.

11. The apparatus of claim 10, further comprising a network component coupled to the network interface via the plurality of transmission lines, wherein the network component includes a storage device.

12. A method comprising:

providing a plurality of input signals to a plurality of pull-up transistors;

coupling each of the plurality of pull-up transistors to one of a plurality of pull-down transistors; and

driving the plurality of pull-down transistors with a plurality of differential low swing signals to output a plurality of low voltage differential signals in response to the plurality of input signals.

13. The method of claim 12, wherein each of the plurality of pull-down transistors has a source, a drain, a gate, and a bulk terminal, the bulk terminal of each of the plurality of pull-down transistors is coupled to the source of the corresponding pull-down transistor to reduce body effect on the corresponding pull-down transistor.

14. The method of claim 12, further comprising:

supplying current to the plurality of pull-up transistors from a first current source;

sensing one of the plurality of low voltage differential signals to produce a feedback signal; and

driving the first current source with an operational amplifier in response to the feedback signal.

15. The method of claim 12, further comprising generating the plurality of differential low swing signals using a low swing differential pre-driver.

16. The method of claim 15, wherein generating the plurality of differential low swing signals using the low swing differential pre-driver comprises:

supplying current to a load from a second current source;

sinking the current from the load via a transistor and a resistor, the transistor being coupled to the resistor in parallel; and

outputting a plurality of low swing differential signals via the load to the gates of the plurality of pull-down transistors.

17. The method of claim 12, further comprising amplifying the plurality of input voltages using a plurality of inverters, each of the plurality of inverters being coupled to a distinct one of the plurality of pull-up transistors.

18. An apparatus comprising:

means for providing a plurality of input signals to a plurality of pull-up transistors;

means for coupling each of the plurality of pull-up transistors to one of a plurality of pull-down transistors; and

means for driving the plurality of pull-down transistors with a plurality of differential low swing signals to output a plurality of low voltage differential signals in response to the plurality of input signals.

19. The apparatus of claim 18, further comprising:

means for providing current to the plurality of pull-up transistors;

means for sensing one of the plurality of low voltage differential signals to produce a feedback signal; and

means for adjusting the current in response to the feedback signal.

20. The apparatus of claim 18, further comprising means for generating the plurality of low swing differential signals.